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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,015	07/31/2003	Elena Pavlovskaja	018563-002920US	4730
46718	7590	01/23/2008		
TOWNSEND AND TOWNSEND AND CREW, LLP (018563) TWO EMBARCADERO CENTER, EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			EXAMINER WERNER, JONATHAN S	
			ART UNIT 3732	PAPER NUMBER
			MAIL DATE 01/23/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/633,015

Applicant(s)

PAVLOVSKAIA ET AL.

Examiner

Jonathan Werner

Art Unit

3732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 and 37-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31, 37-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to Applicant's amendment received 10/30/07.

Drawings

2. The drawings are objected to because Figure 12 is a grayscale image that is rendered illegible. In this case, it is indeterminate as to what reference elements 500/502/504/506/508/510 represent. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-31 and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. (US 6,409,504) in view of Rubbert et al. (US 6,648,640). Jones et al. disclose a computer implemented method for separating gingiva from a tooth on a computer model of the gingiva and the tooth. The method includes the steps of defining a curved closed cutting surface passing through a line between the gingival and a crown of the tooth, wherein the closed cutting surface comprises a crown portion surrounding the crown of the tooth and a root portion approximating the shape of the root of the tooth, and applying the cutting surface to separate the gingival from the tooth (see especially col. 14, lines 45-58; col. 15, lines 12-26; col. 16, lines 1- 5; claim 25). Jones et al. fails to disclose that the crown portion of the cutting surface can have a greater volume than that of the crown of the tooth. Rubbert, however, teaches a computer implemented method of processing virtual images of a patient's dentition to separate the teeth (308) from the gums so as to present just the crowns of the teeth to the orthodontist (column 50, lines 10-14). Rubbert employs a three-dimensional virtual template tooth model (310) as the closed cutting surface (said template model comprising a crown portion and a root portion that approximate the shape of the tooth; Figure 58B). Most notably, Rubbert further discloses the template tooth can be

interactively scaled larger or smaller than that of the original virtual tooth (column 50, lines 35-52). Therefore, it would have been obvious to one having ordinary skill in the art to form the crown portion of the cutting surface to be larger (i.e. greater volume) than that of the crown of the virtual tooth model in the method of Jones et al. in order to ensure the position of the cutting surface is as close as possible to and fully encapsulates the crown of the tooth as taught by Rubbert. Examiner further notes that Jones et al. discloses the step of interactively highlighting the gingival (column 14, lines 28-44), and wherein the cutting surface is expressed as a spline curve (column 16, lines 16-20). Additionally, Figure 35 of Jones shows that the portion of partially spherical curve (614) that helps define the boundaries of the cutting surface is parabolic, wherein parabolic curves are normally defined by a quadratic function (i.e. a polynomial of the second degree). Examiner points out that Jones further discloses the step of displaying the cutting surface (600) specified with a plurality of voxels (i.e. 605), said surface representing the gingival line. Lastly, Jones discloses that the implementation of the method herein described can be realized via a computer program executed by a processor, and wherein said program is tangibly stored on a machine-readable storage device (column 16, lines 23-34).

Response to Arguments

4. Applicant's arguments filed 10/30/07, with respect to the rejection(s) of claim(s) 1 under 35 U.S.C. 103 have been fully considered and are persuasive. Specifically, Applicant's arguments with respect to the Weiss et al. reference have been considered

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and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made as described in detail above.

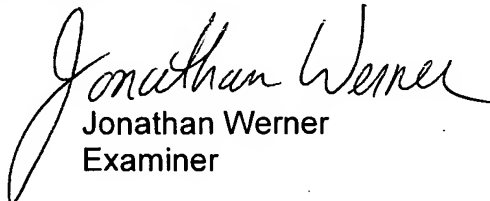
Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Werner whose telephone number is (571) 272-2767. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cris Rodriguez can be reached on (571) 272-4964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

1/20/08


Jonathan Werner
Examiner


MELBA N. BUMGARNER
PRIMARY EXAMINER